SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Draft Staff Report

Proposed Amendments to:

Rule 1157 – PM10 Emission Reductions from Aggregate and Related Operations

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EXECUTIVE SUMMARY

Proposed amendments to Rule (PAR) 1157 – PM10 Emission Reductions from Aggregate and Related Operations are designed to simplify and streamline the implementation of the high wind exemption by establishing specific dust control requirements that impacted facilities must comply with.

The high wind exemption provides the impacted facilities with an exemption from the rule's performance standards during high winds, provided they meet certain requirements. Industry operators argue that the eligibility requirements for the rule's current high wind exemption requirements are impractical and difficult to implement. High winds are defined as instantaneous wind speeds exceeding 25 miles per hour (mph). In this proposal, staff has streamlined the high wind exemption language to eliminate this burden and allow the loading and transporting of aggregate materials as long as appropriate dust controls are applied.

Since the new proposed high wind exemption language no longer restricts eligibility for the exemption to loading and transporting activities supporting critical construction projects (e.g., hot mix asphalt and concrete batching), an emissions increase can be expected from aggregate loading and transporting, as well as storage piles and unpaved roads disturbance. The PM10 emission increase associated with the proposed amendments to Rule 1157 is estimated to be 252 lbs/day, which exceeds the California Environmental Quality Act (CEQA) significance threshold for PM10 of 150 lbs/day. As discussed in greater detail herein, staff evaluated the emission increase relating to a worst-case high wind day based on historical meteorological data from AQMD air monitoring stations. This emission increase does not account for PM10 emission generated by diesel trucks. Estimates of truck emissions are included in the AQMD's full environmental analysis to determine the total potential significant environmental impacts of the proposed high wind exemption.

High-Wind Exemption

Under the current high wind exemption provisions in the rule, aggregate and related facilities that can meet the performance standards of Rule 1157 during high winds can continue their normal operations and supply materials to their customers. Otherwise, these activities must be ceased, except for:

- activities at the concrete batching and hot mix asphalt facilities that produce materials for use in a construction project that is being paved or poured during high winds; and
- loading and transport of aggregate materials directly to the above mentioned facilities.

However, those facilities must prove that irreparable damage to the construction projects would occur if such operations are ceased during high winds.

The proposed modification to the high wind exemption would eliminate these proof requirements for aggregate and related facilities, and allow the loading and transporting of aggregate materials during high winds as long as appropriate dust controls are applied.

Specifically, it is proposed that during active operations, water shall be applied twice per hour on unpaved roads that are not treated with chemical dust suppressant, and water shall be applied within fifteen minutes of each loading activity to stabilize disturbed areas on the storage piles due to loading. The high wind exemption portion that is applicable to concrete batching and hot mix asphalt remains unchanged.

Staff believes that these new requirements will allow the industry more flexibility without sacrificing protection of air quality.

REGULATORY BACKGROUND

Rule 1157 – PM10 Emission Reductions from Aggregate and Related Operations was adopted by the AQMD's Governing Board on January 7, 2005. During the public hearing, some members of the aggregate industry raised concerns regarding the high wind exemption provisions. The industry stated that these provisions impose an impractical burden to the industry since it is impossible for the aggregate facilities to keep track and prove that their materials are used to support construction projects that would be irreparably damaged if discontinued during high wind events.

On February 10, 2005, the California Mining Association (CMA) filed a complaint against the AQMD alleging, among other claims, that the rule contains an unworkable high wind exemption. On September 2, 2005, CMA and the AQMD executed a formal settlement agreement. The AQMD agreed to bring to the Governing Board language to address the high wind exemption. AQMD and CMA agreed upon proposed language which was presented at a Public Workshop on February 2, 2006. During the Public Workshop, the AQMD received verbal comments from CMA representative supporting the new proposed high wind exemption language. Written comments from CMA representatives addressed concerns regarding the AQMD's emissions inventory and estimates of emissions increases related to this new rule language. Comments received during the February 2, 2006 Public Workshop are addressed in Appendix A. No other written comments were received on the proposed amended rule. Written comments received on the Initial Study/Notice of Preparation are responded to in the Draft Environmental Assessment released on April 14, 2006.

PURPOSE AND APPLICABILITY

The purpose of this rule amendment is to improve the implementation of the high wind exemption provision and to improve rule clarity and enforceability. By eliminating requirements that are considered infeasible to the industry and allowing only limited activities to continue during high winds, provided appropriate dust suppressants are applied according to AQMD rules, the proposed exemption would protect the public from exposure to high particulate concentrations during high winds without causing negative economic impacts to the industry, as well as to the region.

LEGAL AUTHORITY

The AQMD obtains authority to adopt, amend, or repeal rules and regulations from Health and Safety Code Sections 39002, 40000, and 40001.

AFFECTED INDUSTRY

The proposed amendments to the high wind exemption provisions would apply to aggregate loading and transporting activities at approximately 29 aggregate facilities. The existing exemption provisions are already applicable to approximately 45 hot mix asphalt and 100 concrete batching facilities in the South Coast Air Basin and those provisions remain unchanged.

SUMMARY OF PROPOSED RULE AMENDMENTS

The proposed amendments to the high wind exemption provisions would exempt facilities from compliance with Rule 1157 opacity standards during high winds if all normal operations are ceased, except for the following: dust controls, underwater dredging, and the transporting of dredged materials to the surge piles. In addition, the loading and transport of aggregate may continue, provided that: (1) appropriate dust controls are applied according to District's rules, (2) during active operations, water is applied twice per hour on unpaved roads that are not treated with chemical stabilizers, and (3) water is applied within fifteen minutes of each loading activity to stabilize disturbed areas on the storage piles due to loading. High winds are defined as instantaneous wind speeds exceeding 25 mph.

The high wind exemption portion that is currently applicable to concrete batching and hot mix asphalt remains unchanged as it allows those facilities to continue the activities to produce materials for use in construction projects which are being paved or poured during high winds, provided that dust controls are appropriately applied as required by AQMD's rules.

EFFECT ON EMISSIONS

Since the new proposed high wind exemption language no longer restricts the exemption to loading and transporting activities supporting critical construction projects (e.g., hot mix asphalt and concrete batching), an emission increase can be expected from the following sources: aggregate loading and transporting, as well as storage piles and unpaved roads disturbance during high winds.

The emission increase was estimated based on the assumption that all 29 aggregate facilities will continue their loading and transporting of aggregate materials, storage pile disturbance, and usage of unpaved roads during high winds. However, according to the California Department of Conservation's July 2002 data, approximately 60% of the aggregates were delivered to public projects and commercial buildings that would require continuous pours.

Therefore, staff reasonably assumed that 60% of the high wind day emissions fall under the current exemption (baseline emissions) and 40% fall under the new proposed exemption (excess emissions). In addition, to estimate excess emissions from open storage piles, staff assumed that during high wind events, only 25% of the storage piles would be disturbed by loading activities at any one time.

Staff also applied the following control efficiencies to the estimates: 68% for water application, which is the greatest CEQA default control efficiency that reflects adjustment due to high wind, and 80% for unpaved roads, assumed that all unpaved roads are treated with chemical dust suppressant in compliance with current Rule 1157.

Based on historically available meteorological data from AQMD monitoring stations for the past 10 years, staff considered January 23, 2006 the worst wind day throughout the Basin. On this given day, an average wind speed of 32 mph was recorded for the entire day in Mira Loma, and various average wind speeds greater than 25 mph were also recorded for lesser durations at most stations. The AQMD staff acknowledges that such a high wind speed and duration are not likely to happen to the entire Basin simultaneously. Therefore, for the emissions increase estimate, staff used the average sustained wind speed and duration recorded on January 23, 2006 at the monitoring station located nearest to the aggregate facility where excess emissions are generated during a high wind event.

For this given day, the emissions were determined using formulas in the following EPA AP-42 documents: Fifth Edition, Section 13.2.4 Aggregate Handling and Storage Piles for loading activities; Fifth Edition, Section 11.19.1 Sand and Gravel Processing for storage piles, and Fifth Edition, Section 13.2.2 for unpaved roads that take into account the local meteorological conditions (high wind speed and duration).

The PM10 emission increase associated with the proposed amendments to Rule 1157 is estimated to be 252 lbs/day, excluding diesel truck emissions, which are included in the CEQA analysis. This value exceeds the CEQA significance threshold for PM10 of 150 lbs/day.

COMPARATIVE ANALYSIS

As required by Health and Safety Code Section 40727.2, the purpose of this analysis is to identify and compare any other AQMD and/or federal regulations that include high wind exemption to the same equipment and/or source type.

Currently, there are no federal regulations that specify high wind requirements or exemptions for equipment and/or activities at aggregate and related operations.

The aggregate and related operations are also currently subject to AQMD Rule 403. Rule 403 exempts sources, such as earth moving, disturbed surface areas, unpaved roads, open storage piles, etc., from the 20% opacity standard, dust visibility limit (to the property line), and/or threshold on the difference between upwind and downwind concentrations (50 ug/m3), provided that the facilities apply contingency control measures listed in Table 3 of

the rule. Unlike Rule 1157, Rule 403 provides a much broader exemption to various sources, mainly the construction/demolition and earth moving activities. In addition, controls required by Rule 403 are not as stringent as those required by Rule 1157. Specifically, none of the controls are required for active loading activities. As a result, it is expected that high wind exemption provisions of Rule 403, in the absence of Rule 1157, would generate higher PM10 emission increase than those of Rule 1157.

Comparison of PR 1157 and other Regulations/Rules

Rule	Exempt Source	High Wind Exemption From	Requirements	Monitoring, Recordkeeping, Reporting, Test Methods
AQMD PAR 1157	Loading and transport of aggregate materials, and concrete batch and hot mix asphalt facilities	▪ 20 and 50% % opacity standards ▪ Visible dust plume exceeding 100 feet	▪ Apply all applicable dust controls ▪ Apply water to unpaved roads not treated with chemical dust suppressants at least twice per hour ▪ Apply water within 15 minutes of disturbing any storage pile	None
AQMD 403	Any source	▪ 20% opacity standard ▪ Dust visibility limit (100 foot plume and exceeding property line) ▪ Upwind and downwind difference (50 ug/m3)	▪ Contingency measures in Table 3 are applied	▪ Recordkeeping is required

CONCLUSION

Amendments to Rule 1157 would address existing exemption provisions relative to the high wind exemption provisions that are deemed impractical to the aggregate industry while continuing to protect the public from exposure to high particulate concentrations during high winds.

DRAFT FINDINGS

Before adopting, amending or repealing a rule, the AQMD shall make findings of necessity, authority, clarity, consistency, non-duplication and reference, as defined in Health and Safety Code Section 40727, and determine that there is a problem that the proposed rule will alleviate, as required by Health and Safety Code Section 40001(c).

The draft findings are as follows:

Necessity - The AQMD Governing Board finds and determines that Proposed Amended Rule 1157 - PM10 Emission Reductions from Aggregate and Related Operations is necessary in order to address implementation issues with a high wind exemption in the current rule. This can be achieved through amendments to the high wind exemption provisions of Rule 1157.

Authority - The AQMD Governing Board obtains its authority to adopt, amend or repeal rules and regulations from Health and Safety Code §§40000, 40440, 40463, and 40725 through 40728.

Clarity - The AQMD Governing Board finds and determines that Proposed Amended Rule 1157, as written, takes into consideration public comments from persons affected by the rule, and as a result, can be easily understood by persons directly affected by it.

Consistency – The AQMD Governing Board finds and determines that Proposed Amended Rule 1157 is in accordance with, and not in conflict with or contradictory to, existing statutes, court decisions, or federal or state regulations.

Non-Duplication – The AQMD Governing Board has determined that Proposed Amended Rule 1157 does not impose the same requirements as any existing state or federal regulation, and the proposed rule is necessary and proper to execute the powers and duties granted to, and imposed on the AQMD.

Reference - In adopting these proposed amendments, the AQMD Governing Board references the following statutes which AQMD hereby implements, interprets or makes specific: Health and Safety Code Sections 40001, 40440 (a), and 40440 (b).

Problem - The AQMD Governing Board determines that there is a problem that Proposed Rule 1157 – PM10 Emission Reductions from Aggregate and Related operations, will alleviate namely the proposed amendments will simplify and streamline the implementation of the high exemption by establishing specific dust control requirements that impacted facilities must comply with.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

Pursuant to the California Environmental Quality Act (CEQA) and AQMD Rule 110, the appropriate documentation has been prepared to analyze potential adverse environmental impacts associated with the proposed amendments to Rule 1157. Comments received at the Public Workshop and CEQA Scoping Meeting have been considered and are addressed in the Draft Environmental Assessment released for a 45-day public comment period on April 14, 2006.

SOCIOECONOMIC ASSESSMENT

PAR 1157 would affect 29 aggregate facilities in the four-county area. The affected facilities belong to the sectors of construction sand and gravel mining [North American Industrial Classification System (NAICS) 212321] and industrial sand mining (NAICS 212322). Of the 29 affected facilities, 12 are located in Los Angeles, one in Orange County, 12 in Riverside, and 4 in San Bernardino County.

Compliance Cost

PAR 1157 would allow aggregate facilities to continue their loading and transport of aggregate materials during high wind, provided that: (1) appropriate dust controls are applied according to the existing district rules; (2) water is applied twice per hour on unpaved roads not treated with chemical stabilizers; and (3) water is applied to disturbed areas of the storage piles within fifteen minutes of each loading activity. The amount of water that would be required by PAR 1157 for unpaved roads during high winds for the 29 affected facilities was estimated at 580,627 of gallons per day. The amount of water that would be required for active areas of affected storage piles is estimated at 28,302 gallons per day.1

Based on an average cost of $4 per 1,000 gallons of water ($3.20 in winter and $4.20 in summer) (L.A. DWP 20052), the total annual cost of water consumption is estimated at $2,448 per high wind day for the 29 affected facilities. Affected facilities would have water trucked in. It is assumed that 38 hours of trucking time would be needed for water delivery to the 29 facilities. Assuming a rental cost of $70 per hour3 (including the driver cost), the additional cost of water delivery is estimated at $2,660 per high wind day. Affected facilities may face a combination of duration and speed of wind. Based on the average annual number of Santa Ana and storm related wind events, it is assumed that each aggregate facility would experience 20 days of high wind events per year. As a result, the total annual cost of PAR 1157 for the affected 29 aggregate facilities is estimated at $102,160.

According to industry representatives, the eligibility criteria for the rule's current high wind exemption requirements are difficult to implement. As a result, the current rule exemption reduces operational flexibility of the affected facilities. PAR 1157 would benefit affected facilities by eliminating delays in loading and transporting aggregate materials to end users. However, it is not possible to quantify monetary benefits of PAR 1157. It is assumed that the affected facilities would only seek exemption when the compliance costs under exemption are cheaper than would otherwise cost. Therefore, the proposed amendment would result in cost savings or no additional costs as compared to current rule.

[1] Draft Environmental Assessment of PAR 1157, April 13, 2006.
[2] Los Angeles Department of Water and Power. (December 2005). Retrieved April 20, 2006 from http://search.yahoo.com/search?p=LA+DWP+Water+Rate&fr=FP-tab-web-t&toggle=1&cop=&ei=UTF
[3] South Coast Air Quality Management District (SCAQMD). Final Socioeconomic Report of Proposed Rule 1157. November 2004.

CEQA Alternatives

There are three alternatives to the proposed amendments. All the alternatives are either as stringent as the existing rule or less stringent than the proposed amendments. Therefore, there are no additional costs associated with these alternatives.

REFERENCES

Public Hearing Package for the adoption of Rule 1157 - PM10 Emission Reductions From Aggregate And Related Operations, SCAQMD, January 2005

AP-42, Fifth Edition, USEPA

Appendix A

Response to Comments

A Public Workshop and CEQA Scoping Session was held regarding proposed amendments to Rule 1157 on February 2, 2006. Comments received during the Public Workshop are responded to below. No written comments were received on the proposed amended rule. Written comments received on the Initial Study/Notice of Preparation are responded to in the Draft Environmental Assessment released on April 14, 2006.

Comment:
The AQMD should not use highest (or absolute worst) historical wind day for the entire basin. Instead, the 4th highest or 98th percentile values should be utilized to estimate the potential impacts of high wind exemption.

Response:
Staff disagrees. For CEQA purposes and in order to protect against violations of the National Ambient Air Quality Standard for PM10, the AQMD is responsible for estimating the reasonably worst case impacts due to the high wind exemption. According to the AQMD meteorological data in the past 10 years, January 23, 2006 is the worst wind day where an average wind speed of 32 mph was recorded for the entire day in Mira Loma. The AQMD staff acknowledges that such a high wind speed and duration are not likely to happen to the entire Basin, nor was it analyzed for the entire Basin. However, this date is reflective of the worst wind day throughout the Basin. Therefore, staff uses the average sustained wind speed and duration recorded on January 23, 2006 at the monitoring station located nearest to the aggregate facilities where excess emissions are generated during a high wind event.

Comment:
The AQMD considers emissions from all activities taking place during high wind day an emission increase. The real emission increase should be the difference between emissions under normal and high wind conditions.

Response:
The AQMD disagrees with the commentor. The emission increase is the additional emissions that would be generated due to the new proposed high wind exemption compared to the baseline emissions that would otherwise be generated as a result of the current high wind exemption. Staff assumes that 60% of the high wind day emissions fall under current exemption (baseline emissions) and 40% fall under new proposed exemption (excess emissions). According to the California Department of Conservation's July 2002 data, approximately 60% of the aggregates were delivered to public projects and commercial buildings that would require continuous pours. It is conceivable that part of the 40% high wind day emissions due to deliveries to commercial projects may fall under the baseline emissions, but since staff does not have any statistical information on the subset for the reasonably worst case analysis; staff is assuming all such emissions to be excess emissions.

In addition, to estimate excess emissions from open storage piles, staff assumes that during the high wind events, storage piles are only disturbed 25% of the time due to loading activities.

Comment:
Since the fraction of aggregates covered under current high wind exemption is unknown, it is reasonable to assume that 40% of the materials are not shipped during high wind days, but are shipped within a 24-hour period.

Response:
Staff disagrees. CMA requested the amendment because of the need to continued operation. This information contradicts the information previously provided by CMA to support for high wind exemption amendment. The proposed change to the current exemption language would allow aggregate facilities to continue loading and delivering aggregate materials during high wind events, provided all other operations cease and applicable dust controls are applied. Staff cannot, therefore, make an assumption that 40% of the materials are not shipped during high wind.

Comment:
Reported wind speeds of 32 and 35 mph result in emission factors for loading operations that are roughly seven times higher than under normal condition (0.0011lb/t). District should explain why emission factors of 0.0011 lbs/t and a control efficiency of 95% for water were not used.

Response:
The 95% control efficiency for water is used for rule development purposes. When a worst-case scenario is examined, the maximum default CEQA control efficiency of 68% for water is used. This value would reflect the adjustment due to high wind.

The emission factor of 0.0011 lbs/t is used for normal operating condition. For high wind conditions, the loading emission factor is derived based on AP-42's equation listed in Section 13.2.4 dated January 1995. In this equation, different wind speeds at different monitoring stations are used to derive a wind-driven site-specific emission factor. Staff believes that using this equation is the best approach since emissions factors under high wind conditions is expected to be higher than emission factors under normal operating condition.

Comment:
The control efficiency of 68% (compared to maximum control efficiency of 95% for water) is low. Industry believes that the use of extra water would significantly reduce excess emissions.

Response:
Field experience indicates that when a facility continues to operate during high winds, even Best Available Control Measures may not be effective enough to keep the dust down. Acknowledging that problem, staff developed high wind provisions to protect the public from exposure to high particulate concentrations during high winds and shield the facility implementing Best Available Control Measures from potential enforcement action. Staff believes that 68% control efficiency for water is a reasonable assumption since it is the highest value of the control efficiency range listed in the 1993 AQMD's CEQA Handbook (Table 11-4, Chapter 11). The assumptions on which this emission factor is based, have not changed.

Comment:
Loading and vehicular traffic emissions are double counted. Stacker emissions should be excluded from stockpile emission factor.

To estimate storage pile emission, staff should multiply the emission factor in lb/ton by the tonnage of materials loaded in and out of the piles, not by the tonnage of the pile.

Response:
Staff disagrees. The traffic movement accounted for in the stockpile emission factors are for vehicle movement around the stockpile areas (Midwest Research Institute, *Development of Emission Factors for Fugitive Dust Sources*, June 1974, page 70), not for the travel on unpaved roads (page 87 of the above mentioned document) or for material dumping activity of the trucks to the piles. Therefore, loading and road emissions are not double counted.

The high wind exemption analysis deals with the loading of aggregate from the piles, not the unloading of materials onto the piles, therefore, stackers should not be considered.

According to above mentioned Midwest Research Institute document, the emission factor of 0.33 lb/ton of material stored was derived based on the total surface area of 15 piles (96,000 ft2) and the total weight of the aggregate in storage (50,000 tons). This emission factor is representative of particulate matter emissions from all activity in and around the pile area, and includes loading/unloading activities and vehicle traffic around the piles. It is a composite factor based on a 7 day, 24 hour study period, and gives consideration to active and inactive periods. Therefore, to estimate store pile emissions, staff multiplies the above emission factor by the tonnage of materials in the pile, not the tonnage of materials moved in and out of the pile. As previously explained to the industry, the above emission factor was also derived based on the assumption that storage piles are inactively disturbed by natural winds and not loading for approximately 75% of the time. Since winds, by their nature, would affect many areas of the piles, it makes sense to use the tonnage of materials stored. To cross check, staff also conducted stockpile emission estimate based on the surface area approach and the result was found to be within 20% of staff's current emission estimate based on stockpile tonnage.

Comment:
Industry source test data demonstrates that the AP-42 unpaved road equation overestimates PM10 emissions by approximately 10 times. Chemical stabilizer and other controls are not accounted for in unpaved road emission estimates.

Response:
The EPA equations (including the unpaved road emission equation) have been peer reviewed and are approved for use. Data used in the unpaved road equation are given a B rating in AP-42, therefore, should be utilized with high confidence. Without wide acceptance and peer review, staff cannot use data provided by CMA for the emission estimates.

Staff assumes that all aggregate facilities would use chemical dust suppressant on their unpaved roads to comply with current Rule 1157. As a result, an 80% control efficiency was applied to

estimate unpaved road emissions during high wind events. Reducing driving speed might be used as addition control strategy, but is not proven to be effective by itself; therefore, no credit is given to this control.

Comment:
The mass fraction of PM10 in total particles emitted should be adjusted accordingly.

Response:
The majority of AP-42 emission factors are for PM10, therefore, in those cases, PM10 adjustment would not be needed. For the storage piles, since the emission factor is for PM, staff adjusted PM10 based on the assumption that PM10 accounts for 50% of the total PM emissions.